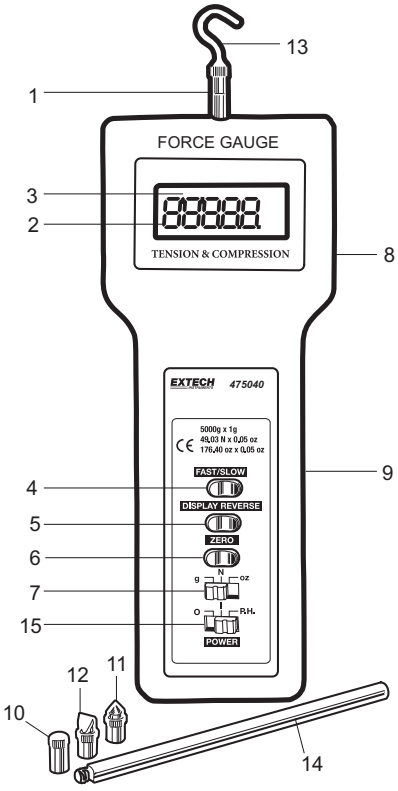
User's Guide

EXTECH INSTRUMENTS

Models 475040 and 475044
Digital Force Gauge

1. Universal sensing head
2. LCD Display
3. Fast response indicator
4. FAST / SLOW response selection
5. LCD reverse display button
6. Zero/Tare button
7. Units select switch
8. Mounting Holes (on rear)
9. Battery compartment cover (on rear)
10. Flat Head adapter
11. Cone adapter
12. Chisel adapter
13. Hook adapter
14. 5" (120mm) extension rod
15. OFF/ON/PEAK HOLD button



Introduction

Congratulations on your purchase of Extech's Digital Force Gauge. This professional meter, with proper care, will provide years of safe reliable service. Measure Tension or Compression (Push or Pull) to 5kg (475040) or 20kg (475044), reversible display indicates readings in grams, ounces, or newtons. This meter offers Peak Hold and a Zero function.

Specifications

	475044	475040
Range	44 lbs, 20kg,196 Newtons	176oz, 5000g, 49 Newtons
Accuracy (23°C)	±(0.5%rdg + 2 digits)	± (0.4%rdg + 1 digit)
Resolution	0.01lbs, 0.01kg, 0.05 Newtons	0.05oz, 1g, 0.01 Newtons
Overload Capacity	30kg	10kg
Circuit	Custom LSI microprocessor circuit	
Zero adjust	Button for Peak Hold and normal display zero	
Display	5 digits, 0.4" (10 mm) LCD display	
Update Rate	Fast mode 0.2 secs; Slow mode 0.6 secs.	
Overrange Indicator	Displays "--------"	
Zero Control	Maximum capacity	
Full Scale Deflection	2.00mm	
Transducer type	Load cell	
Peak Hold	Freezes Max reading on display	
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F).	
Operating RH	Max. 80% RH.	
Power Supply	6x 1.5V AA (UM-3) size battery or DC 9V adapter (not included)	
Weight	1.2 lbs/551g	
Size	8.9 x 3.3 x 1.5" (227 x 83 x 39 mm)	
Mounting Holes	Located on rear of gauge for optional test stand	
Accessories	Tension adapter (hook), compression adapters (flat, cone, and chisel), 5" extension rod, 6 x 1.5V AA batteries, case	

Operation

Preparation for Measurement

1. The 475044 or 474040 automatically determines TENSION or COMPRESSION (Push or Pull) force during use. Compression displays as a negative value and Tension displays as a positive value.
2. Select units of measure (grams/kilograms, ounces/pounds, or newtons) via the units select button.
3. Attach the desired adapter (tension – hook; compression.- flat, cone or chisel head) to the Universal Sensing Head.
4. Select FAST or SLOW response. The FAST setting permits the capture of fast measurement changes and the SLOW setting provides an averaged reading display.
5. Zero the display before each measurement via the Zero button.

Note: The sensing head with adapter must be in line with the object being measured. Avoid rotating the sensing head. Refer to the figure below.

Figure 1 – Correct and Incorrect Angles of Measurement

Acceptable Not Acceptable

Normal Measurement Mode

1. Slide the POWER switch to the ON position. Reverse the LCD display if desired via the Reverse key.
2. Zero the meter before each measurement.
3. Touch the adapter to the object being measured in a straight line. Refer to Fig.1.
4. Begin measurement by applying force (Push or Pull). Read the LCD display.
5. After completing the measurement, the display will indicate "0.00" if the position and angle of the Force Gauge have not changed.
6. If the position or angle of the Force Gauge changes during a measurement, the display may show one of the following:
   a) The display overranges because the initial force of the transducer **decreases** due to a change in the position or angle of the Gauge after measurement.
   b) The display indicates any value such as "12", "25", etc. This occurs because the initial force of the transducer **increases** due to a change in the position or angle of the Gauge after measurement.

Note: Be sure to press "ZERO" before taking any new measurements.

Peak Load Measurement

1. Slide the POWER switch to the PEAK position...
2. Touch the adapter to the object being measured in a straight line, refer to Fig. 1.
3. Zero the meter before each measurement.
4. Begin measurement by applying force (pull or push). The LCD will display the peak value, which is the highest reading encountered.
5. After completing the measurement, the display will hold the peak load value if the position and angle of the Force Gauge have not changed.
6. After completing the measurement, the display will overrange if the position or angle of the Force Gauge has changed. This occurs because the initial force of the transducer **decreases** due to a change in the position or angle of the Gauge after measurement.

Note: Be sure to press "ZERO" before taking any new measurements.

Fast/Slow selection

Press the FAST/SLOW key to select the desired display update rate. The "((•))" symbol will appear in the display when FAST is selected.

Mounting

For best results, mount the Digital Force Gauge to a test stand (optionally available, contact Extech for details). Mounting holes are provided on the rear of the meter.

Maintenance

Battery Replacement

The low battery indication appears as a "LO" on the display when battery voltage is less than 6.8V. To replace the battery:

1. Remove the two screws from the battery compartment cover.
2. Lift off the battery cover.
3. Replace with 6x 1.5V AA (UM-3) batteries. Observe polarity carefully.
4. Replace compartment cover and screws.

Calibration and Repair Services

Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

Warranty

EXTECH INSTRUMENTS CORPORATION warrants the basic instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 EXTENSION 210 for authorization or visit www.extech.com for more information. **A Return Authorization (RA) number must be issued before any product is returned to Extech.** The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.